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I
GEOGRAPHIC VARIATION IN THE
RICHARDSON GROUSE

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Tetrao richardsonii was described by Douglas¹ from the Rocky Mountains, Lat. 52° N., Long. 115° W.; it has commonly been regarded in later years as a subspecies of the *Dendragapus obscurus* aggregation. In 1914, Taverner² named *Dendragapus obscurus flemingi* as a northern variant of this same group, with type locality at Teslin Lake, Yukon Territory. This was described as a dark colored form, all comparisons being made with birds from "southern British Columbia," apparently from the south-central section. I, myself, was familiar with "*richardsonii*" only as from the Okanagan region, British Columbia, and from eastern Oregon. Birds from northern British Columbia were obviously different from the southern specimens, just as Taverner described, and I accepted *flemingi* at face value, as a well marked, dark-colored, northern subspecies, probably of rather restricted distribution.

When Major Allan Brooks and I collected together in the Atlin region in 1924 he was outspokenly skeptical as to the validity of *flemingi*, assuring me that he had seen dark-colored grouse from mountains in the "wet belt" of southeastern British Columbia, remote from the described habitat of

¹ Trans. Linn. Soc. Lond., XVI, pt. 1, 1829, 141.

² Auk, XXXI, 385.

flemingi. This is the basis of Brooks'³ later statement that "Swarth is well aware of the presence of a very dark form of *richardsoni* with all the characters of *flemingi* throughout the whole of the humid southern interior of British Columbia." I was aware of it in the sense that Brooks had given me this information. I am glad to pay tribute here to the keenness of Brooks' field observations and to say that I did not for a moment doubt the accuracy of what he told me, but I did not see how I could utilize the knowledge at that time, in the absence of specimens or other exact data.

The problem naturally remained in my mind, however, and it was forcibly brought to the fore when in 1928 Messrs. Mailliard and Tose, of the California Academy of Sciences, returned from Creston, British Columbia, with four adult male *Dendragapus* that were indistinguishable from birds of the Atlin region. Creston is close to the extreme southeastern corner of the province, Atlin in the extreme northwest. Following this I availed myself of the opportunity that offered to examine all the specimens of the *richardsonii* aggregation in the British Museum, the Rothschild Museum at Tring, the United States National Museum and the Field Museum of Natural History.

The result of all this is my firm though reluctant conviction that *Dendragapus obscurus flemingi* Taverner is a synonym of *Tetrao richardsonii* Douglas. Two distinguishable forms had been lumped under the one name *richardsonii* but Taverner named the wrong subspecies. There is no type specimen extant of Douglas' *richardsonii*, nor, so far as I know, any near topotypes, but I have seen enough specimens from points north, west and south of the type locality to carry conviction that, interposed between the type locality of *richardsonii* and the habitat of the pale colored southwestern form, there is continuous distribution of the dark colored northern and eastern form. The southwestern subspecies appears to be a pallid variant that has been evolved in the semi-desert conditions of the northern part of the Great Basin, extending northward together with the sage brush and a few other attendant birds, mammals and plants for a short distance into south central British Columbia.

³ Condor, XXIX, 1927, 113.

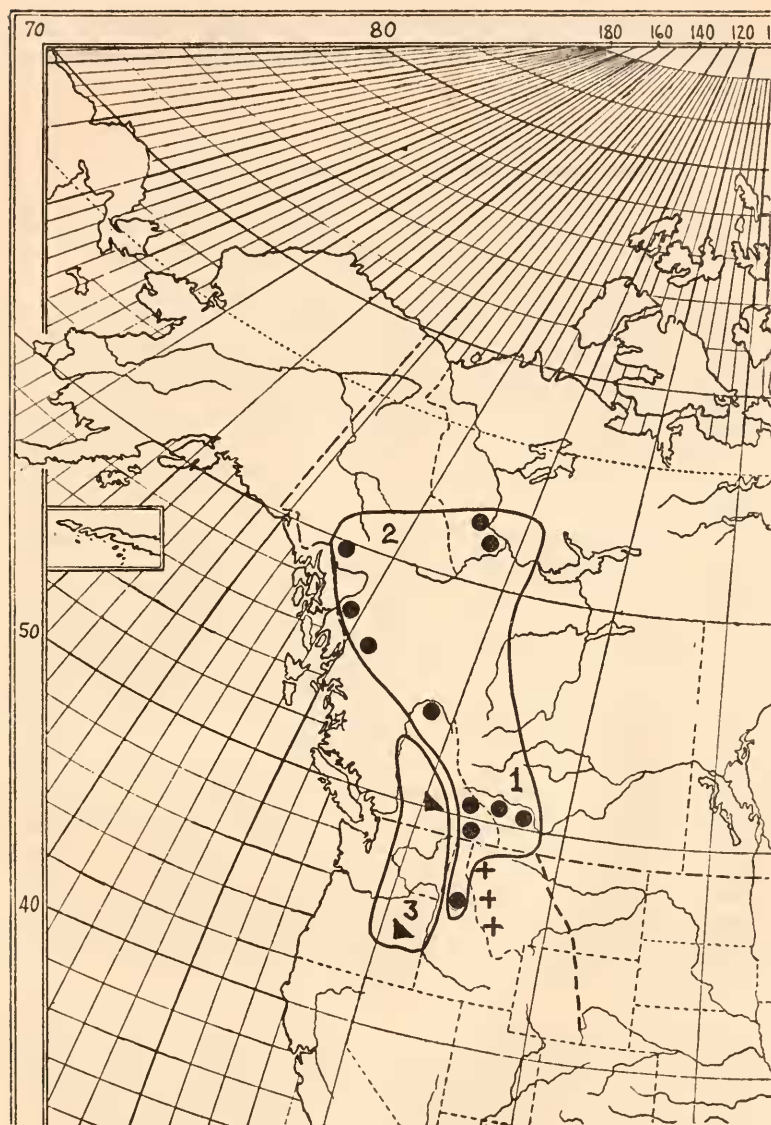


Fig. 1. Map of western North America, showing distribution of *Dendragapus obscurus richardsonii* and *D. o. pallidus*. Symbols indicate localities from which specimens were examined: circles, *richardsonii*; triangles, *pallidus*; crosses, supposed intergrades between *richardsonii* and *obscurus*. 1, type locality of *Tetrao richardsonii*; 2, type locality of *Dendragapus obscurus flemingi*; 3, type locality of *Dendragapus obscurus pallidus*.

The unavoidable readjustment of our ideas regarding this group of grouse calls for a new name for the southwestern form.

***Dendragapus obscurus pallidus*, new subspecies**

Type: Male adult, no. 6825⁴, coll. J. & J. W. Mailliard; October 14, 1894; **Cornucopia, Baker County, Oregon.**

Description: With the specific characters of *Dendragapus obscurus*. Similar to *D. obscurus obscurus* in general coloration but differs from that subspecies in not possessing a well defined terminal gray band upon the rectrices. Similar to *D. obscurus richardsonii* in the absence of the above mentioned tail marking, but differs in being of generally paler coloration.

There do not seem to be any minor details of color, markings or measurements to distinguish between the two subspecies *richardsonii* and *pallidus*. The differences are of a general nature. One is developed to a dark extreme, the other to a pale extreme, and there is an accentuation of white markings in the one form, a softening of such markings in the other. *Pallidus* seems to be in character, as it is in geographical distribution, intermediate between *D. obscurus obscurus* and *D. obscurus richardsonii*. Between *D. o. obscurus* and *D. o. pallidus* there is no difference that I can see in body color and markings, and almost no difference in the shape of the tail. The fully adult *obscurus* has just such a square-cut tail as *pallidus* and *richardsonii*. So that the only difference there lies in the presence or absence of the terminal tail band.

Distribution: *Dendragapus obscurus richardsonii*. From northwestern British Columbia (Atlin) and southern Yukon (Lake Teslin) east into southwestern Mackenzie (vicinity of Fort Simpson and Fort Halkett), south through east-central and southeastern British Columbia (Rocky Mountains, Selkirk Range, and smaller ranges) and through western Alberta (vicinity of Banff and Calgary) into northern Idaho.

⁴ The Mailliard collection belongs to the California Academy of Sciences but has not yet been catalogued.

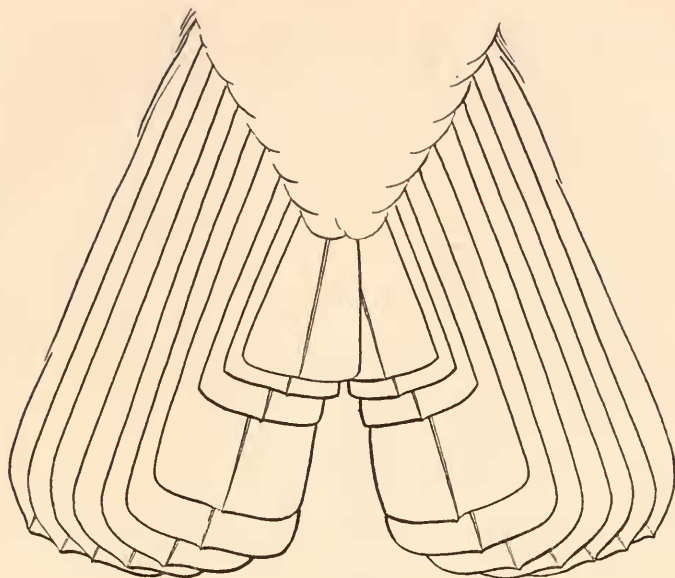


Fig. 2. Tail of *Dendragapus obscurus richardsonii*, dorsal view; adult male (Museum of Vertebrate Zoology, no. 44664); $\frac{1}{2}$ natural size. This bird, shot September 1, has nearly finished the annual molt; the lateral rectrices are full grown; the central ones less than half emerged.

Dendragapus obscurus pallidus. From south central British Columbia southward over eastern Washington and northeastern Oregon.

The subspecific identity of "*flemingi*" and *richardsonii* can, I think, be accepted as an established fact. Likewise, the northern boundaries of *richardsonii* are, I believe, indicated with fair accuracy on the accompanying map. Conditions are not so clear, however, at the southern boundaries of *richardsonii* and *pallidus*, and in the territory where either or both approach the habitat of *obscurus*.

I have examined various specimens from points on the eastern slope of the Rocky Mountains in Montana, that, when I saw them singly in the several museums where I happened to be visiting, seemed to me to belong without doubt to the form I now term *pallidus*. There were, however, one or two specimens from more western points in Montana and from Idaho that were dark colored and otherwise typical of *richard-*

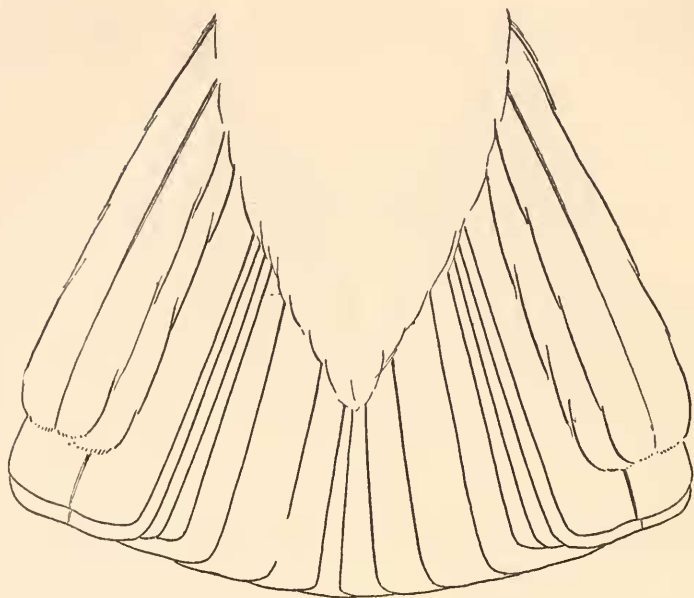


Fig. 3. Tail of *Dendragapus obscurus pallidus*, ventral view; immature male (coll. of J. and J. W. Mailliard, no. 6824); $\frac{1}{2}$ natural size. This bird is near the end of its first annual molt and is assuming the adult type of tail. The two outermost rectrices on each side are of the previous year's (immature) plumage, not yet discarded though the central rectrices are full grown.

sonii. To interpret the pale colored Montana birds as representative of *pallidus* would result in a disconnected habitat for that subspecies, with a *richardsonii*-inhabited area interposed. While most of the debateable Montana birds were examined by me singly before I realized the need of further comparisons, I have several available at this writing and also good specimens of *obscurus* from Colorado. I now believe that the pale colored Montana birds are in all likelihood illustrative of intergradation between *obscurus* and *richardsonii*. There is remarkably little difference between *obscurus* and *pallidus* except for the tail marking, and a slight change in this character from the *obscurus* mode would produce just such *pallidus*-like birds as those that I have seen from the western slope of the Rocky Mountains in Montana. This is my present interpretation of the facts but the whole matter should, of course,

be considered open for further investigation. Anyone who has the opportunity should make a thorough study of variation in these grouse in Montana and Idaho.

Molts and the succession of plumages in *Dendragapus* are rather complicated. In a previous publication⁵ I have set forth what I knew on this subject, but in the present study a fresh fact came to light that seems worth presenting. In the male *richardsonii*, as in others of the genus, there are conspicuous differences in the tails of young and fully mature, two years old and more (Swarth, *loc. cit.*, fig. C). There are also, it seems, differences in the manner of molt of the rectrices. In the old bird the outermost tail feathers are lost first and their successors are nearly full grown when the central pair are dropped. The result is a lyre-shaped tail that is conspicuous in flight, and that serves readily to identify such old males as are flushed in August and early September. In the year-old male first assuming the adult plumage this procedure is reversed, as shown by a specimen at hand, and the outer rectrices are the last to be renewed (see figs. 2, 3).

The map presented herewith was prepared by Miss Margaret W. Wythe, the drawings of tail feathers by Mrs. Frieda Abernathy.

⁵ Swarth, Univ. Calif. Publ. Zool., vol. 30, 1926, pp. 73-84, text figs. B-E.